



Graphic health warnings on cigarette packs: an exploration of its effectiveness in deterring the youth of Bangladesh

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ABSTRACT

Background: Throughout the world, graphical health warnings (GHW) are seen as one of the more effective methods of discouraging the use of tobacco products. GHWs on cigarette packs are able to provide information on specific diseases and is believed to increase quit attempts and reduce age of initiation among youths. **Methods:** A cross-sectional exploratory study was conducted among a representative sample of respondents from three districts of Bangladesh. Face-to-face interviews were conducted to collect information using a semi-structured questionnaire. Descriptive analysis was performed to explore the respondents' perceptions and comparative analysis was done to understand the effectiveness of the GHWs. **Results:** Most of the respondents started smoking before the age of 18 years. Loose cigarettes were the preferred medium of purchase and most respondents were aware of the harmful effects of smoking. Some attempts to quit smoking were made after being exposed to GHWs, though this varied with the age of respondents. Nevertheless, the respondents believed that although the images used for GHWs gave a clear message, ultimately GHWs are not enough to deter smokers. Selling of loose cigarettes was seen as a barrier to GHWs as most respondents do not purchase full packs. **Conclusion:** The findings of the study reveal that implementation of GHWs has had an effect in increasing awareness about health hazards and have inspired thoughts about quitting smoking. Further efforts are needed to develop

innovative GHWs and provide regulatory support such as the banning sale of loose cigarettes to increase the impact of GHWs on youths.

Keywords: Graphic health warnings; loose cigarettes; cigarette packs; youths.

1. INTRODUCTION

Deaths attributable to smoking are projected to increase substantially throughout the 21st century and much of the increase will occur in low-and middle-income countries. Bangladesh, with a population of over 170 million people, is one of the most populous countries in the world and is in danger of being heavily affected by these projections.

Throughout the world, graphic health warnings (GHW) are seen as one of the more effective methods of discouraging the use of tobacco. The Framework Convention on Tobacco Control (2003) is an international treaty under the World Health Organization (WHO). Article 11 of the Framework requires the signatory countries to implement the printing of such warning's on packets that contain tobacco, such as cigarette packs.

In order to comply with such measures, the government had taken steps to make tobacco companies print graphic health warnings on the "upper 50%" of the packets through the amendment of the Tobacco control Act of 2005 in 2013 (GoB, 2013). However, the government had faced stiff resistance from the companies as well as internal sources as it wasn't until early 2015, (almost 22 months later) that the government were finally able to finish devising the rules regarding graphical warnings.

The tobacco manufacturers were then given one year to make the necessary preparations in order to implement this new measure. Finally, on the 19th of March 2016, graphic health warnings are printed on the backs of all forms of tobacco packs for the first time in the history of Bangladesh. However, by pursuing a temporary but illegal provision, the companies were printing the graphic health warnings on the bottom 50% of the cigarette packs as opposed to the top half as required by law.

The youth of a country is vitally important as they are the future generation, and as such, it is their duty to guide the country towards a brighter future. Youth is defined as being the time when a person is between the ages of 15-30 under the National Youth Policy of Bangladesh (GoB, 2003). Bangladesh demographically, is blessed with a higher proportion of youths when compared to other age groups and so has the potential to make rapid advances in the near future.

Smoking is highly addictive and dangerous and as a result, can jeopardize the future of the country by crippling the next generation with various maladies. Alarmingly, smoking is seen as a trend among the young people of our country, many of them start smoking as a matter of fashion and smartness. The Government looked to curb this issue by bringing in some changes to the existing Smoking and Tobacco Control Amendment Act in 2013, including the printing of graphic health warnings on cigarette packets.

This research looked to focus on these young people and how they behave in relation to the graphic health warnings that are being printed on the back of cigarette packets. The effect it has on these youths had been analyzed in detail to see how successfully it manages to dissuade smokers, as well as discourage potential smoker, from picking up the packet and smoking a cigarette.

Previous studies have established that pictorial warnings are effective in promoting smokings cessation among users, informing people about the adverse health. Vinay Kumar Bhardwaj, Shailee Fotedar, Sunil Abbott, Pravesh Jhingta in their article titled, "Awareness of pictorial warning on cigarette packets and its impact on smoking cessation among smokers," agreed that GHWs were indeed increasing public awareness. However, their studies did not study the impact on smoking behavior, a gap that this study tried to fill.

Another study conducted among Lebanese school and university students dealt with the issue of whether pictorial warnings were effective in motivating students to quit smoking or not (Alaouie et al, 2015). The investigation failed to see if these finding correlated with other groups of youths such as job holders as it only focused on school goers.

Brewer et al, (2016) found in their research on the effect of pictorial cigarette pack warnings on changes in smoking behavior. Brewer et al, (2016) found that the pictorial warnings effectively increased intentions to quit, forgoing cigarettes, quit attempts, and successfully quitting smoking over 4 weeks. Their findings suggest that implementing pictorial warnings on cigarette packs in the United States would discourage smoking. These findings provide a positive impact of GHWs and this study attempted to see if such impact could also be seen in Bangladesh.

The operational definition of "Youth" is defined as when a person is between the ages of 18-35 under the National Youth Policy of Bangladesh (2003). Tarafdar et al. (2009) recommended that youths needed to be protected so that they don't engage in smoking activities at such a tender age while conducting their study on tobacco use by the young population.

Huq et al. (2015) looked at age, gender, and parents smoking status, family awareness etc. as being independently associated with the adolescents smoking habit while conducting their study in Bangladesh. The study analyzed the association between smoking and emotional as well as behavioral problems among the adolescents of the country. This study attempted to see if these findings holds true for the youth of Bangladesh as well.

Previously research had been conducted either on the usage of GHW or awareness of using GHW on the cigarette packets. No such study has been conducted on the effectiveness of using GHW and its effectiveness on young generation in Bangladesh. The number of Young smokers is increasing day by day and is not aware of GHW. Hence, this study has been taken up to evaluate the awareness of young smokers about Graphical Health warnings (GHW) on cigarette and effectiveness of these warning in deterring their habit of smoking.

2. METHODOLOGY

2.1. Study Design

It was a cross-sectional study and thus was designed to take a snapshot of the variables used at a given period of time. For the study, the quantitative method of research was used in order to gather and analyze data using statistical tools.

2.2. Study Period

The study was conducted over a period of nine months starting from March, 2018 and ending in November, 2018.

2.3. Study Area

The study focused on the three districts of Dhaka, Kushtia and Sylhet which were selected purposely. Dhaka contains the most diverse youth population of the country. Kushtia is a location as it is a place that has a reputation for tobacco cultivation and the study wanted to see if this would influence the effectiveness of GHWs. As for Sylhet, the survey was conducted in the city. Furthermore, Kushtia is located at the Eastern part of Bangladesh whereas Sylhet is located at the Western part of Bangladesh.

2.4. Study Population

The research considered on the youths as defined by the National Youth Policy 2003, and so the study population consisted people aged 18-35 years. The study focused on three categories of youths namely: students, service holders and day labourers.

2.5. Sample Design

2.5.1. Sample Size Determination

The size of the sample that was used for the study is given below: -

The study sample size estimated using the following formula:

$$n = \frac{P(1 - P) \times Z^2}{d^2}$$

The above equation was calculated to give $n = 384.16$ where:

$Z = 1.96$ for 5% level of significance

$P =$ Expected proportion in the population: 0.5

$d =$ Margin of error: 0.05

This shows that study sample needed to contain at least 384.16 respondents in order to keep the level of confidence at 95% with a margin of error of 5%. It also considered a non-response rate of 5% - i.e. 19 samples and added those in order to get 403. Among the respondents, the students were selected from universities/colleges and the service holders and daily laborers were selected from Motijheel commercial area of Dhaka, Kushtia city and Ambarkhana of Sylhet.

The distribution of the respondents among the three districts is presented below:

Table 1: Distribution of respondents

Data Collection Method	Respondent Category	Study Area			Total
		Dhaka	Kushtia	Sylhet	
Survey Questionnaire	Student	65	35	33	133
	Job Holder	63	33	34	130
	Day Labourer	67	34	33	134
	Total	195	102	100	397

2.6. Data Analysis

Quantitative data collected by the questionnaires was coded by converting the answers into numbers with the help of computer. After that, the data was categorized and checked for any errors both human and otherwise. The cleaned data was then analyzed by using the statistical package for social sciences (SPSS) Windows Software Program (Version 17). Various statistical tools, such as descriptive statistics, correlation, cross-tabulations, central tendency tests etc., were used to extensively examine the data collected. The resultant findings from the data gathered were then presented in various charts, graphs and tables.

2.7. Data Quality Management

A procedure was maintained for the duration of field data collection. For this purpose, several experienced field research assistants were trained via a two-day workshop held at Dhaka University. During this time, the data collectors were able to familiarize themselves with the data collection instrument and suggested any edits if necessary.

2.8. Ethical Issues

2.8.1. Organizational Ethical Issue

Organizational Ethical Clearance (EC) had been obtained from the Institutional Review Board (IRB) of the Institute of Education and Research, University of Dhaka.

2.8.2. Individual Ethical Issue

An informed written consent was obtained from the respondents through their signature for every single questionnaire. Participants had the right to terminate the interview at any stage of the interview. Full confidentiality of the gathered data was maintained and the data gathered was only used to serve the purposes of this study.

3. RESULTS

Table 2: Background and demographic Information (n=397)

Variables	Respondent Category		
	Student	Job Holder	Day Labourer
Educational Status			
Illiterate	0 (0.0%)	11 (8.5%)	39 (29.1%)
Till Higher Secondary	16 (12.0%)	54 (41.5%)	94 (70.1%)
Graduate and Above	117 (88.0%)	65 (50%)	1 (0.8%)
Total	133 (100%)	130 (100%)	134 (100%)
Number of cigarette sticks consumed (per day)			
1–5	60 (45.1%)	50 (38.5%)	25 (18.7%)
6–10	54 (40.6%)	62 (47.7%)	61 (45.5%)
10 and above	19 (14.3%)	18 (13.8%)	48 (35.8%)
Mean number of sticks (\pm SD)	7.0 (\pm 5.0)	7.8 (\pm 4.5)	11.9 (\pm 7.3)
Total	133 (100%)	130 (100%)	134 (100%)
Age of initiation to smoking (in years)			
Below 18	89 (66.9%)	63 (48.5%)	98 (73.1%)
After 18	44 (33.1%)	67 (51.5%)	36 (26.9%)
Mean age of initiation (\pm SD)	17.5 (\pm 2.9)	18.9 (3.7)	16.7 (\pm 4.7)

Total	133 (100%)	130 (100%)	134 (100%)
Money spent on cigarettes per month (in BDT)			
Below 2000	84 (63.2%)	79 (60.8%)	96 (71.6%)
2000–4000	45 (33.8%)	48 (36.9%)	34 (25.4%)
4000 and above	4 (3.0%)	3 (2.3%)	4 (3.0%)
Mean BDT spent	1855	1853	1683
Total	133 (100%)	130 (100%)	134 (100%)

The findings reveal that both students and job holders smoked roughly the same number of cigarettes a day (5 and 4.5 sticks respectively) while day laborers smoked more (7.3 sticks). This correlates with education as 99.2% of day laborers did not complete graduate level education (table 2). Similarly, day laborers on average had a slightly lower age of initiation (16.7) when compared to students and job holders (17.5 and 18.9 correspondingly). Interestingly, students and job holders spent almost the same amount of money on cigarettes per month while day laborers spent less overall (1633 taka) despite consuming more sticks (table 2). This highlights that day laborers were smoking cheaper low-quality cigarettes more often than students and job holders and thereby were putting their lives at an even greater risk.

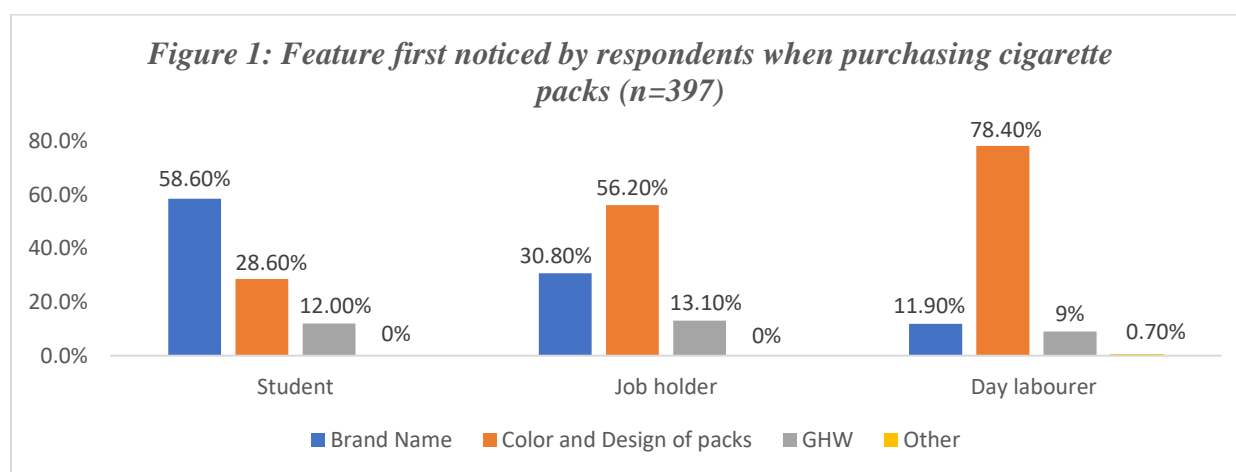


Figure 1 presents information on the opinion of respondents about the feature of GHW that they noticed first. It shows that about 58.6% students noticed the brand name first, whereas 56.2% job holders and 78.4% of day labourers noticed GHWs first. Irrespective of category color and design of packs are noticed most.

Table 3: Observability of graphic health warnings

Variables	Respondent Category		
	Student	Job Holder	Day Labourer
Noticed graphic health warnings			
Yes	129 (97.0%)	130 (100%)	131 (97.8%)
No	4 (3.0%)	0 (0%)	3 (2.2%)
Total	133 (100%)	130 (100%)	134 (100%)
Type of graphic health warning noticed			
Text	1 (0.8%)	3 (2.3%)	1 (0.8%)
Pictorial	14 (10.9%)	14 (10.8%)	26 (19.8%)
Both	114 (88.3%)	113 (86.9%)	104 (79.4%)
Total	129 (100%)	130 (100%)	131 (100%)

Table 3 presents the awareness of respondents about GHW on cigarette packet. It was found that almost all of the respondents noticed GHW and it was not much varied by the category of them. It is also seen from the table that 88.4% students, 86.9% job holders and 79.4% of day labourers noticed both the pictorial and text warning.

Table 4: Clarity of message sent by GHWs (n=397)

Variable	Respondent Category			^a <i>p</i> -value
	<i>Student</i>	<i>Job Holder</i>	<i>Day Labourer</i>	
<i>GHW sends out a clear message*</i>				
Yes	99 (74.4%)	116 (89.2%)	125 (93.2%)	0.001
No	34 (25.6%)	14 (10.8%)	9 (6.8%)	

Note:^ap-value calculated from *t*-test; *Significant at $p < 0.01$

Table 4 presents information on the perception of youths about the clearness of warning message shown to the packets. It shows most of the respondents who felt the GHWs were sending out a clear message were day labourers (93.2%) and most of the respondents who disagreed were students (74.4%). Table also shows that there is a difference between categories of respondents who believe that the warnings send out a clear message and those who believe that they do not, furthermore this difference is significant.

Figure 2 indicates the ignorance level of GHWs due to the nature of images used. It is seen from the graph that 74.4% of students; 89.2% of job holders and 93.3% of day labourers ignored the warnings.

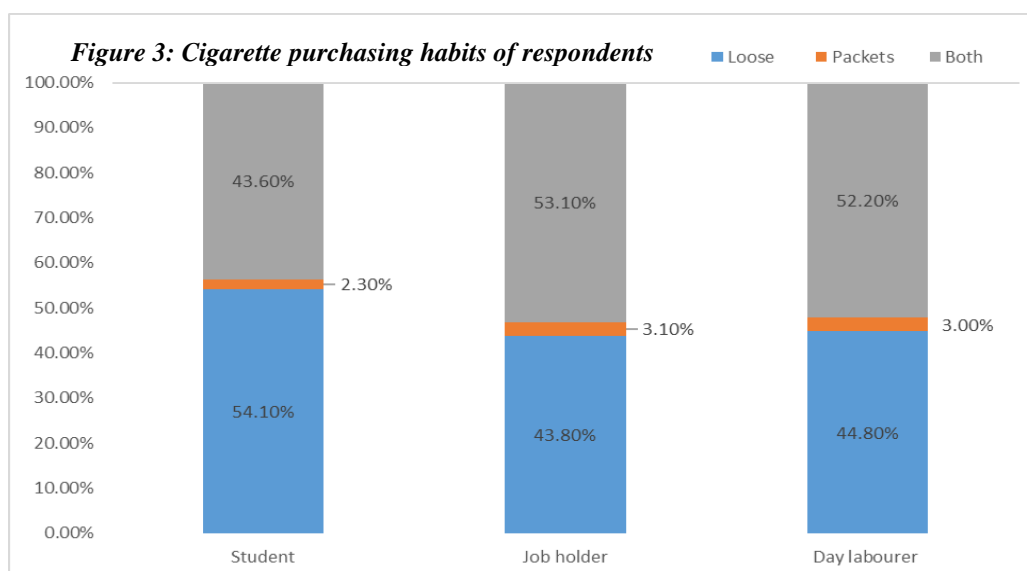
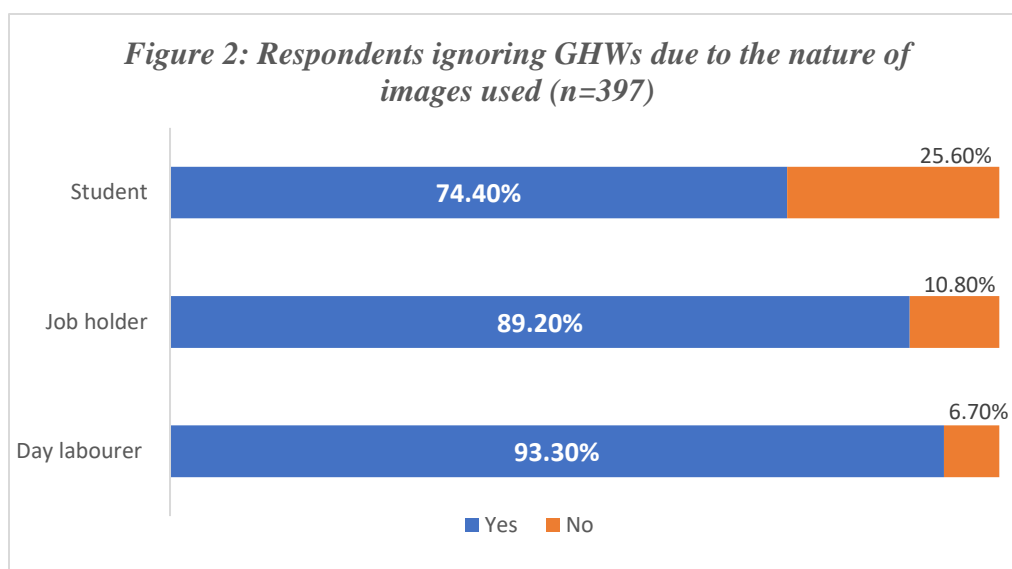


Figure 3 shows the purchasing behaviour of the respondents. It shows that irrespective of numbers most of the respondents purchased cigarettes in either loose sticks or packets. Very few respondents actually purchased packets only.

The figure 4 describes the ignorance of GHWs in relation to purchasing behaviour of respondents. It shows that 137 out of the 189 respondents who bought loose cigarettes had also ignored the GHWs. This means that most of the respondents who buying loose cigarette are also ignoring GHWs.

Table 5 presents information on youth's level of awareness on Graphic Health Warnings. It shows that the respondents felt that, cigarette manufacturers were indeed displaying the GHWs properly on cigarette packets and they felt loose cigarettes were a barrier to GHWs. As for raising awareness, the respondents felt that GHWs were able to quickly tell people about the dangers of smoking.

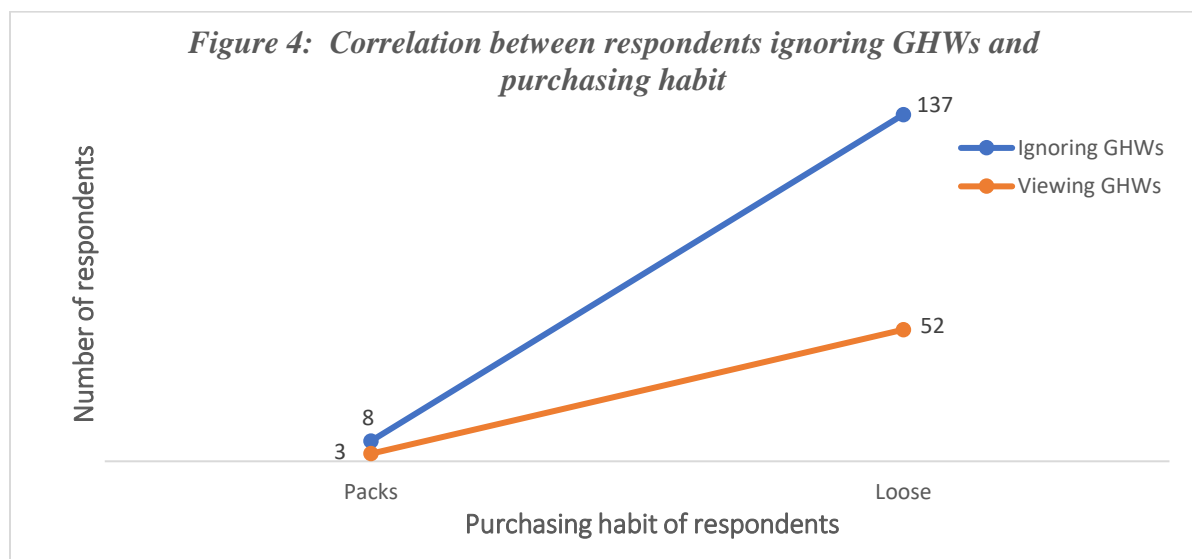


Table 5: Perception of respondents regarding the effectiveness of graphic health warning

Perception regarding GHWs*	Student		Job holder		Day labourer	
	Mode (Scale)	%	Mode (Scale)	%	Mode (Scale)	%
<i>GHW is useful in deterring smokers</i>	2	53.4	2	48.5	2	46.3
<i>GHW does not require any formal education</i>	4	47.4	2	48.5	4	40.3
<i>Smoking habits of youths have changed after the provision of GHW</i>	2	53.4	2	44.6	2	47.0
<i>GHW can quickly make people aware of the health hazards of smoking</i>	4	45.1	4	55.4	4	57.5
<i>Loose cigarettes are an obstacle to GHW</i>	4	38.3	4	60.8	4	53.7
<i>Cigarette manufacturers are not effectively displaying/printing GHWs on cigarette packets</i>	2	39.8	2	55.4	2	48.5

*Note: Scale: 1= Strongly disagree, 2= Disagree, 3= Neither agree nor disagree, 4= Agree, 5= Strongly agree

4. DISCUSSION

The findings of the study suggest that graphic health warnings that are being printed on cigarette packs are definitely having an impact on the habits of youth smokers. The investigation looked at various elements such as socio-economical background; tobacco consumption as well as the overall design and visibility of the graphic health warnings to evaluate their impact on tobacco users.

The study revealed that most of the students and job holders had started smoking with their friends when they spend time “chit-chatting” or “gossiping” with one another. This finding was in direct contrast to what Bhardwaj et al. (2016) who had found that young people to be more aware of dangers and as a result were less likely to smoke. However, our study showed that most of these young individuals in Bangladesh smoked for the first time with their friends. They were also likely to experiment with various substances and of these smoking was one of the easiest activities that they could experiment with. Hence, they had initially started smoking just for fun or fashion but ultimately, it had become an addiction after a certain period of time.

The students and day labourers surveyed for the investigation mostly began to smoke before they reached the age of 18. This corroborates the findings of Pervin (2016), Hossain et al. (2015) and Huq et al. (2015). This reveals that smoking has increased in popularity in the modern era and those who were holding jobs (i.e. the older generations) were likely to take up smoking after completing their studies but nowadays younger people see it as something normal and cannot resist it and so start smoking at an early age.

Loose cigarettes are also an important issue for GHWs as most respondents in the survey said that they purchased sticks instead of packets. This is a hindrance to GHW effectiveness because those who purchase loose cigarette don't get to hold the cigarette packs in hand and thus cannot see the warnings first hand. GHW being an international solution was created with the intention that cigarettes will be sold in packets as they are sold in most developed countries and so the selling loose cigarettes was not something that was considered when GHWs were being conceived by the international community. Thus it is undoubtedly reducing the effectiveness of GHWs in Bangladesh. Consequently, the majority of respondents that purchased loose cigarettes were also the ones that said that they ignored the GHWs. Thus, this establishes a direct relationship between youths that do not buy cigarette packets and are also more likely to ignore the GHWs as a result of it and so GHWs will not be truly effective as long as loose cigarettes are sold in markets.

The results show that GHWs have indeed increased the awareness of the people regarding the dangers of smoking and this is in agreement with the findings of Alaouie et al. (2015), Bhardwaj et al. (2016) and Brewer et al. (2016). Significant portions of the youth population now know about the various diseases that can occur due to smoking. Thus one of the important motives behind the introduction and enforcement of GHWs are being met. The respondents felt that the warnings gave out a clear message to the smokers as the messages presented through the texts or images were very disturbing, clear and any one seeing them could easily understand what it was about. However, the disturbing nature of the images can be too much for some people as most of the respondents also revealed that they ignored the warnings whenever they could as they did not like looking at the images presented. The youths are the next generation of the country and so if they continue to ignore the GHWs and continue smoking then the future of the country will be in danger. Therefore, more research is needed to find out exactly what can be done to make sure that the warnings are not ignored.

Study findings show that students and job holders faced various restrictions on smoking at their place of study and place of work respectively. This is because most of the public and private universities have restricted smoking in the campus and made it a “smoking free zone.” These measures correspond well with the recommendations of Tarafdar et al. (2009) who called for steps to protect the young population. This study also found that most respondents smoked in public places despite knowing that it was illegal to do so. This means that the law is not being enforced properly as people are able to smoke in public places putting the health of the public at risk.

A crucial finding of the study is that GHWs were indeed making people think about quitting the habit of smoking. A noteworthy proportion of respondents felt GHWs were easy to notice and hard to forget. They did indeed believe the message that were written or shown on the GHWs. Thus they would think about quitting smoking once they saw them, thereby supporting the findings of Brewer et al. (2016). The warning contains information about various harmful effects, and this is making it possible to teach the public about the bad effects of smoking, in order to hopefully influence them to quit their dangerous habit. However, it did not make them quit smoking entirely as some respondents stated that despite believing the warnings, they made no changes in their lifestyle as they were too addicted and felt everyone will die one day anyway.

In summary, the respondents agreed that GHWs were not completely stopping smokers from smoking cigarettes. They praised the efforts of manufacturers as they felt that they were indeed printing the warning properly and in a clear way. Furthermore, the respondents all agreed that GHWs were effective in raising awareness about the harmful effects of smoking. However, they all felt that loose cigarettes were a huge problem and needed to be dealt with in order for GHWs to become more successful.

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The findings of the study revealed that the implementation of graphic health warnings had an effect in increasing thoughts about health hazards and quitting of smoking. Most of the respondents knew about the health hazards of smoking and had noticed Graphic Health Warnings. However, the warning did not lead to them quitting smoking entirely but rather led them to reduce the number of cigarettes they smoked.

Results indicate that GHWs are able to influence family members of smokers to put pressure on them to quit smoking. External factors such as peer pressure, stress and environmental factors are having a negative impact on the effectiveness of Graphic Health Warnings. Respondents also believe the sale of loose cigarettes to be a big issue in terms of Graphic Health Warnings effectiveness. Graphic Health Warnings are very effective in making respondents feel the need to quit smoking when they see it for the first time. However, it is documented that due to the addictive nature of smoking, most respondents return to their old smoking habit and Graphic Health Warnings do not have the same impact anymore.

5.2. Recommendations

- The Selling of loose cigarette should be controlled because the smoker when buying cigarette(s) without any packet, he is unable to get the message from the GHW or the images printed on the packet. As a result the motive of GHW in spreading the warnings to the smoker fails.
- The warnings printed on the cigarette packets as GHW or images should be made more clear, specific and real. This is because the warnings are failing to give the message regarding the bad effects since some of the effects like throat disease or lung disease are barely seen to happen in human body. Hence the images are to be made clear and the warnings more specific and realistic.
- Raising the public awareness about the bad effects of smoking and the merits of GHW. The message of GHW can be printed on banners, posters and hung in front of each cigarette selling shop and important point of cities and towns. The documentaries on bad effects of smoking might be broadcasted on various mediums.
- The most crucial measure that should be implemented immediately to have the proper implementation of the Act is, licensing the tobacco sellers and ban on mobile sellers or hawkers. Selling of loose cigarette can be reduced to a great extent by controlling the mobile sellers and hawkers. It is far too easy to access cigarettes for the youth population under current regulations.

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Contributions

Md. Shofiul Alam and Waseq Billah designed the study, revised the methodology, created the data collection tools, conducted data analysis and report writing. Md. Zubair Hossain conducted literature searches and provided summaries of previous research studies, supervised and validated field data collection, edited and reviewed research reports.

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Conflict of Interest

All authors declare that they have no conflicts of interest.

Data and materials availability: All related data have been presented in this paper.

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